REMARKS

This paper is responsive to the Office Action dated September 23, 2003, having a shortened statutory period expiring on December 23, 2003, wherein:

Claims 1-36 were pending in the application; and

Claims 1-36 were rejected.

No claims have been amended, added, or canceled by this amendment. Accordingly, claims 1-36 remain currently pending.

Rejection of Claims under 35 U.S.C. §102

In the present Office Action, claims 1-5, 13, 15-17, 20, 24, 25, 27-29 and 36 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,188,686 issued to Smith (hereinafter, "*Smith*"). While not conceding that the Examiner's cited reference(s) qualify as prior art, but instead to expedite prosecution, Applicants have chosen to respectfully disagree and traverse the rejection as follows. Applicants reserve the right, for example, in a continuing application, to establish that one or more of the Examiner's cited references do not qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed.

With respect to Applicants' claims 1 as originally presented, the Examiner states within the present Office Action that *Smith* teaches a system including,

> a plurality of inputs and a plurality outputs (configuring said switch matrix to couple a plurality of inputs to a plurality of outputs). See Abstract. In one embodiment, the connections means may comprise time-division multiplexing means for each data delivery group, operable repetitively to perform a preselected sequence of switching cycles that includes at least one fist switching cycle. The switching cycles are preferably of the same duration (a time period of said minimal concurrency defining a switching period)...The sequence will normally include one type of switching cycle for each data unit of the group, e.g. first, second, third, and fourth switching cycles for a four-data-unit group (each one of said plurality of information streams comprises a plurality of portions in a sequence and is received at a corresponding one of said plurality of inputs). In time-division multiplexing, each of the portions of data from the group will have its own time slot for being transmitted – the reason for having time slots is so that collisions of data can be avoided (a one of said plurality of portions is in a specific position in said sequence; a time period during which said one of said plurality of

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portions transits said switching matrix is at least minimally concurrent with said time period for each other one of said plurality of information streams). It is inherent that the switching apparatus must reconfigure itself during the different time periods so that information from the different inputs can reach the different outputs (reconfiguring said switch matrix during said switching period). See col. 3, line 50-col. 4, line 26; col. 25, lines 1-64; col. 26, lines 21—59, and col. 28, lines 24-49.

Applicants respectfully disagree and request that the Examiner cite with specificity those portions of *Smith* which are believed to teach each element of Applicants' claim(s) as required by 37 C.F.R. §1.104(c)(2). More specifically, with regard to Applicants' claim 1, the Examiner is requested to indicate that specific portion of *Smith* which is believed to teach, "configuring said switch matrix to couple a first input to a first output" and "reconfiguring said switch matrix during a first time period, said first time period corresponding to said one position in said sequence" as claimed.

Smith teaches a switching apparatus including <u>a plurality of data units; cross-connect switching units</u> (having a plurality of input ports and output ports) for providing data transfer paths serving to pass data received at one of the input ports to one of the output ports; <u>and connection units (connected to the input ports and to at least two data units constituting a data delivery group</u>) for delivering data from designated source data units to respective input ports and for delivering the data, after passage through one of the data transfer paths, from the output ports to respective designated destination data units. (see *Smith*, Abstract) *Smith* further teaches that,

> Alternatively, the said connection means may comprise time-division multiplexing means for each data delivery group, operable repetitively to perform a preselected sequence of switching cycles that includes at least one first switching cycle, <u>in which the time-division multiplexing means serve to deliver to the input port associated with the group data received from a first data unit of that group,</u> and also includes at least one second switching cycle in which the time-division multiplexing means serve to deliver to that associated input port data received from a second data unit of that group different from the said first data unit of the group. The switching cycles are preferably of the same duration (the duration required to transfer a packet of data through the switching fabric). (*Smith*, Column 3, Lines 50-63, emphasis supplied)

Applicants note that the time-division multiplexing described above occurs between data units and cross-connect switching unit(s) rather than within a cross-connect

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switching unit. Moreover, Applicants respectfully submit that *Smith*'s teaching that "each of the portions of data from the group will have its own time slot for being transmitted...so that collisions of data can be avoided" as admitted by the Examiner in the present Office Action is inconsistent with the Examiner's statement that, "It is inherent that the switching apparatus must reconfigure itself during the different time periods so that information from the different inputs can reach the different outputs."

Applicants respectfully submit that as each of the portions of data from a group has its own time slot or switching cycle for being transmitted, *Smith* inherently teaches (if anything) that each new data path from an input port to an output port must be provided by a cross-connect switching unit in between switching cycles or time slots to avoid data collisions as well. Consequently, Applicants respectfully submit that *Smith* fails to teach, "reconfiguring said switch matrix during a first time period, said first time period corresponding to said one position in said sequence" as claimed. (Applicants' claim 1)

With respect to Applicants' claim 3 as originally presented, the Examiner further states within the present Office Action that *Smith* discloses that, "an input connection can be switched into a data-passing state, in which it serves to pass data from its data unit to said associated input port (non-blocking switch matrix). See col. 2, lines 47-57." Applicants respectfully disagree and request that the Examiner cite with specificity those portions of *Smith* which are believed to teach each element of Applicants' claim(s) as required by 37 C.F.R. §1.104(c)(2). More specifically, with regard to Applicants' claim 3, the Examiner is requested to indicate that specific portion of *Smith* which is believed to teach a method of operating a switch matrix, "wherein said switch matrix is a rearrangeably non-blocking switch matrix" as claimed (emphasis supplied).

Smith teaches, as admitted by the Examiner in the present Office Action, input connections which pass data from a data unit to an associated input port of a cross-connect switching unit rather than within a cross-connect switching unit. *Smith* further teaches that, in addition to the above-described "data-passing state", each input connection is switchable to a high-impedance or "data-blocking state" (see *Smith*, column 2, lines 51-62). Applicants submit therefore that *Smith* not only fails to teach a

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<u>rearrangeably</u> non-blocking switch matrix but, by teaching the described "data-blocking state", is inconsistent with or contrary to a method of operating <u>any</u> non-blocking switch matrix.

Applicants therefore respectfully submit that independent claim 1 and dependent claim 3 are each independently allowable over *Smith*. Applicants' claims 2 and 4-12 depend directly or indirectly from claim 1 and are therefore allowable for at least those reasons stated for the allowability of that claim. Applicants' claims 13, 16, 20, 24, 30, 32 and 36 contain one or more limitation substantially similar to those described herein with respect to Applicants' claims 1 and/or 3 and are therefore, along with all corresponding dependent claims, similarly allowable for at least those reasons stated for the allowability of one or more of those claims.

Rejection of Claims under 35 U.S.C. §103

In the present Office Action, claims 6, 10-12, 18-19, 21-23, 30-33, and 35 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Smith* in view of U.S. Patent No. 5,410,600, issued to Toy (hereinafter "*Toy*"). While not conceding that the Examiner's cited reference(s) qualify as prior art, but instead to expedite prosecution, Applicants have chosen to respectfully disagree and traverse the rejection as follows. Applicants reserve the right, for example, in a continuing application, to establish that one or more of the Examiner's cited references do not qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed.

Applicants respectfully submit that neither *Toy*, nor any permissible combination or construction of *Toy* with the Examiner's cited reference *Smith* teaches, shows, or suggests, "reconfiguring said switch matrix during a first time period" as claimed (Applicants' claim 1). *Toy* teaches a prescramble encoding mechanism which divides a data word into a plurality of sequences of data bits for transmission over a fiber optic communication link. (*Toy*, Abstract) The Examiner has cited no portion of *Toy* for the proposition of teaching, showing, or suggesting "reconfiguring said switch matrix during a first time period" where a portion of a plurality of portions of an information stream is in a position corresponding to the first time period as claimed (Applicants' claim 1). Rather, *Toy* has been cited by the Examiner solely as teaching, "the resequencing or the

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rearranging of portions of data before they are switched through the switch, and resequencing the portions of data back to their original sequence after they have been switched."

As it has been shown hereinabove that *Smith* fails to teach, show, or suggest "reconfiguring said switch matrix during a first time period" where a portion of a plurality of portions of an information stream is in a position corresponding to the first time period as claimed (Applicants' claim 1), it is further submitted that no combination of *Smith* and *Toy* may be construed as teaching, showing, or suggesting the described "reconfiguring" and that Applicants' claim 1 is accordingly allowable over the Examiner's cited portions of *Smith* and *Toy*.

Applicants further respectfully submit that no motivation to combine the disclosures of *Smith* and *Toy* exists within either reference. *Smith* teaches a switching apparatus having switching units with a reduced number of input ports and does not address network security (as suggested by the Examiner in the present Office Action) or the detection of link errors. *Toy* teaches a pre-scramble encoding method in which a data frame is scrambled prior to transmission over a fiber optic link. According to the teaching of *Toy*, a frame may be resequenced to separate adjacent bits prior to scrambling and resequenced back to the original sequence after descrambling in order to increase the likelihood that link errors will be detected in the descrambled frame. *Toy* does not however address or suggest any particular type of switching approach. Consequently, Applicants submit that no motivation to combine the disclosures of *Smith* and *Toy* exists within either reference.

In the present Office Action, claims 7-9, 14, 26 and 34 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Smith* in view of *Toy* in further view of U.S. Patent No. 6,266,333, issued to Kartalopoulos (hereinafter "*Kartalopoulos*"). While not conceding that the Examiner's cited reference(s) qualify as prior art, but instead to expedite prosecution, Applicants have chosen to respectfully disagree and traverse the rejection as follows. Applicants reserve the right, for example, in a continuing application, to establish that one or more of the Examiner's cited references do not

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qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed.

More specifically, the Examiner states within the present Office Action (emphasis supplied) that although neither *Smith* nor *Toy* expressly disclose the use of a SONET frame or a portion of data containing network overhead,

> Kartalopoulos discloses the use of SONET frames, which happen to contain network overhead in them. See col. 1, lines 41-52. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use SONET frames as the information stream. One of ordinary skill in the art would have been motivated to do this because SONET frames are a common standard used in transmitting information over optical lines.

> Regarding claim 9...it is obvious that the portions will be loaded with a value to keep them synchronized. See col. 2, lines 49-63.

> Regarding claim 14...it is obvious that the time period of minimal concurrency is such that a leading edge of one portion has been output before a trailing edge is received. One of ordinary skill in the art would have been motivated to do this because this is just one way of setting the timing parameters of the system.
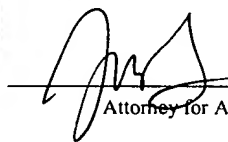
Applicants respectfully disagree. With regard to Applicants' claim 7, Applicants respectfully submit that the mere existence of the SONET standard as taught by *Kartalopoulos* is insufficient, without more, to establish a *prima facie* case of obviousness under 35 U.S.C. §103. Applicant respectfully requests that the Examiner provide some suggestion or motivation, within the cited references or knowledge generally available to one of ordinary skill in the art at the time of Applicants' invention, to combine or modify the teachings of *Smith*, *Toy*, and/or *Kartalopoulos* as suggested in the present Office Action.

With regard to Applicants' claims 9 and 14, Applicants submit that a *prima facie* case of obviousness under 35 U.S.C. §103 cannot be established based upon what, in hindsight, is currently obvious as suggested by the Examiner, but must be based rather on what would have been obvious at the time of Applicants' invention. Consequently, Applicants respectfully submit that a *prima facie* case of obviousness has not been established with respect to Applicants' claims 9 and 14.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned.
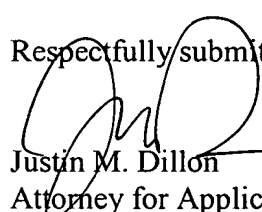
Respectfully submitted,

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